PROJECT REPORT

1. INTRODUCTION

1.1 Project Overview

Shop Smart is a full-stack grocery web application developed using the MERN stack (MongoDB, Express.js, React.js, and Node.js). The system enables users to browse grocery products, add items to their cart, and place orders online. An administrator panel is provided to manage products, users, and orders efficiently. The application aims to simplify grocery shopping by providing a convenient and user-friendly digital platform.

1.2 Purpose

The primary purpose of Shop Smart is to provide a seamless online grocery shopping experience. The project focuses on reducing the time and effort required for traditional grocery shopping while ensuring efficient product management for administrators. It demonstrates the implementation of full-stack web development concepts including authentication, role-based access control, RESTful APIs, and database integration.

2. IDEATION PHASE

2.1 Problem Statement

Many customers face difficulty in purchasing groceries due to long queues, limited store timings, and the inconvenience of physically visiting stores. There is a need for a simple and user-friendly digital solution that allows customers to browse, select, and purchase grocery items online efficiently. Shop Smart aims to solve this problem by providing an organized and accessible online grocery shopping platform.

2.2 Empathy Map Canvas

Customer Type: Working professionals and homemakers

Think & Feel

- Wants quick and easy grocery shopping
- Prefers saving time and effort
- Looks for reliable and organized platforms

See

- Long queues in physical stores
- Limited store timings
- Confusing or complicated online platforms

Say & Do

- Searching for grocery items online
- Compares prices
- Adds items to cart and places orders

Pain Points

- Time-consuming shopping process
- Difficulty finding specific products
- Stock unavailability

Gains

- Convenient shopping from home
- Organized product categories
- Easy order tracking

2.3 Brainstorming

The project team brainstormed different approaches to solve the grocery shopping problem:

- Developing a web-based grocery application
- Providing role-based access for users and administrators
- Integrating cart and order management features
- Designing a simple and intuitive user interface
- Ensuring secure authentication and data storage

After evaluating various ideas, the team finalized the development of a full-stack grocery web application using the MERN stack.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey map

1. User visits website
2. Registers or logs in
3. Browses products by category
4. Adds products to cart
5. Places order
6. Views order history

3.2 Solution

Requirement

Functional Requirements

- User Registration & Login
- Product Browsing
- Add to Cart
- Place Order
- Admin Product Management
- Order Management

Non-Functional Requirements

- Usability (Simple UI)
- Security (Authentication & Role-based access)
- Performance (Fast page loading)
- Scalability (Support more users/products)

3.3 Data Flow Diagram

The system consists of:

- Users interacting with frontend
- Frontend sending requests to backend
- Backend processing data
- MongoDB storing user, product, and order information

Data flows from user input → server processing → database storage → response back to user.

3.4 Technology Stack

Frontend: React.js,
Bootstrap Backend:
Node.js, Express.js
Database: MongoDB
Version Control: Git & GitHub

4. PROJECT DESIGN

4.1 Problem Solution Fit

Shop Smart solves the inconvenience of traditional grocery shopping by providing a digital platform that enables customers to shop from anywhere and anytime.

4.2 Proposed Solution

A full-stack web application that allows users to browse grocery items, manage cart, and place orders. Admin dashboard enables product and order management.

4.3 Solution Architecture

Client-Server Architecture:

User → React Frontend → Express Backend → MongoDB

Database Admin → Dashboard → Backend → Database

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Project Duration: 16 Dec 2025 – 20 Feb

2026 Sprints included:

- Sprint 1: Requirement Analysis & Setup
- Sprint 2: Authentication Module
- Sprint 3: Product Module
- Sprint 4: Cart & Order Module
- Sprint 5: Admin Module
- Sprint 6: Testing & Deployment

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

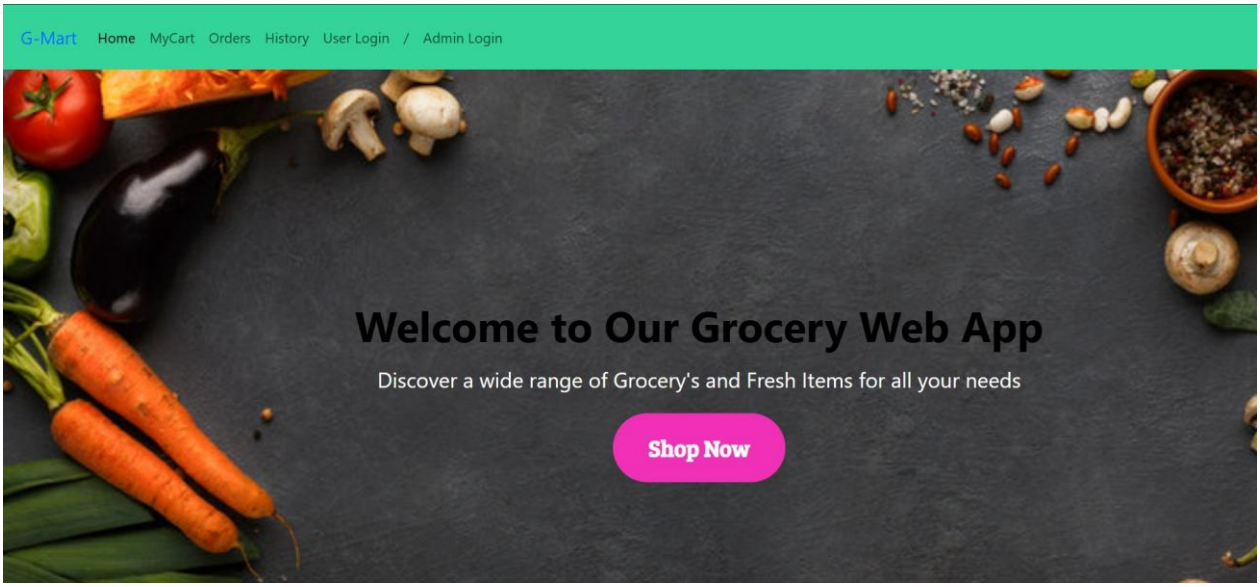
Manual testing was conducted to verify:

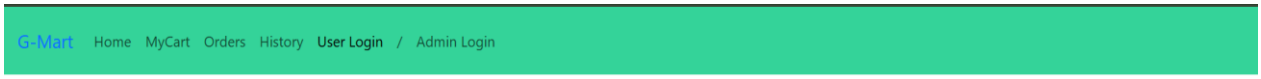
- Registration and login functionality
- Product browsing
- Cart operations
- Order placement
- Admin product management

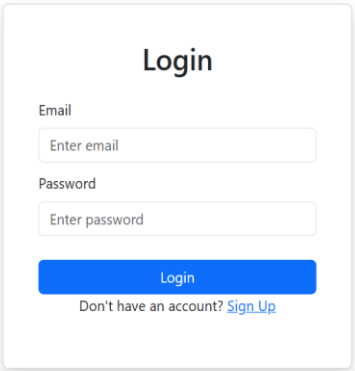
All core functionalities worked successfully.

7. RESULTS

7.1 Output Screenshots







Grocery Web App

Dashboard Users Products Add product Orders Logout

Products

Tomato

$30

Update Delete

Potato

$20

Update Delete

Carrot

$40

Update Delete

Apple

$120

Update Delete

G-Mart Home MyCart Orders History Logout

My Cart

Tomato

$30

Remove from Cart Buy this

Banana

$60

Remove from Cart Buy this

Milk (1L)

$50

Remove from Cart Buy this

Grocery Web App

Dashboard Users Products Add product Orders Logout

Dashboard

Product Count

12 Products

View Products

User Count

1 Users

View Users

Order Count

14 Orders

View Orders

Add Product

Add

8. ADVANTAGES & DISADVANTAGES

Advantages

- Saves time
- Easy to use
- Secure login
- Role-based access

Disadvantages

- Requires internet connection
- No online payment integration (currently)

9. CONCLUSION

Shop Smart successfully demonstrates a full-stack grocery web application using MERN stack. The system provides a convenient and organized platform for online grocery shopping with separate admin control.

10. FUTURE SCOPE

Online payment

integration Mobile

application version

Email notifications

Real-time order tracking

11. APPENDIX

GitHub Repository:
https://github.com/harika1807/ShopSmart_Grocery_WebApp

Demo Link:

https://drive.google.com/file/d/1Ql3qVLCdQQ_TvnRTZS9yhSXhtrFX4Fme/view?usp=sharing